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Popular Article

Economic impact of mastitis on the dairy farming

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Introduction

Mastitis is globally an important production disease of dairy cows (FAO, 2014), one of the main causes of economic losses to dairy farmers. India possesses world's largest bovine population with 193.46 million cattle, out of which 51.36 million cattle are exotic/crossbred and 142.11 million cattle are indigenous/non-descript (BAHS,2022), which is about 12.67% of the world cattle population. India ranks first in the world, contributing 23% of global milk production. The total milk production was 221.06 million tonnes and per capita availability was 444 grams per day in 2022 (BAHS, 2022).

Economic loss due to mastitis

India has the world's largest dairy farming community, with over 13.90 million farmers. It is one of the most expensive production diseases, accounting for a global economic loss of 100 trillion US dollars and around Rs. 7165.51 crores in India. Milking cows generate a net monthly income of 6000-8000 Rs, whereas dairy farming generates an overall monthly income of 9000-10000 Rs per farmer. During mastitis, milk supply drops from 9-10 kg to 6-7 kg on average. Mastitis reduces income by 306-335 Rs per cow per day, from 413-458 Rs. Antimicrobial residues in milk contribute to the substantial loss of milk due to public health and safety concerns (Nielsen et al., 2009). Culling of animals affected by episodes of mastitis at the herd level results in a significant loss for farmers



(Sinha et al.,2014) reported that the anticipated expenditure of 49 percent accounts for milk quality and 37 percent for veterinary expenses, totaling Rs. 1390 for crossbred cows in India.

The global prevalence of SCM and CM has been estimated to be 42% and 15%, respectively, with 45% and 18% in India. The prevalence of SCM and CM in buffaloes across the world was higher than in cattle. SCM and CM prevalence were high in the World based on somatic cell count and clinical evaluation, respectively. The incidence of SCM was higher than that of CM, indicating the relevance of SCM in dairy cattle. (Krishnamoorthy et al., 2021).

For crossbred cows, indigenous cows, and buffaloes, the average monthly loss in optimistic and pessimistic scenarios of the Indian condition is Rs. 3206.55, Rs. 2119.67, and Rs. 1708.89, respectively, as well as Rs. 3549.59, Rs. 2448.03, and Rs. 1934.78. In India, the average treatment cost for mastitis per animal is Rs. 525, Rs. 695.53, and Rs. 647.36 for crossbred cows, indigenous cows, and buffaloes, respectively. Mastitis is responsible for 39.53% (Rs. 316.67), 47.07% (Rs. 618.56), and 49.12% (Rs. 625) of production losses in non-descript cows, crossbred cows, and buffaloes, respectively. Mastitis indirectly causes an increase in the number of deaths among humans due to the proliferation of antibiotic-resistant superbugs. These superbugs are created as a result of the use of antibiotics to treat mastitis. Resistant superbugs kill 700,000 people each year and are expected to kill 10 million by 2050. Mastitis is responsible for a global economic loss of 100 trillion US dollars.

Prevalence and incidence rate of clinical and subclinical mastitis

Subclinical mastitis is 15-40 times prevalent in dairy herds than clinical mastitis making subclinical mastitis more important than clinical mastitis. In India, the prevalence of subclinical mastitis ranges from 10 to 50 percent, but clinical mastitis is only 1-10 percent. Subclinical mastitis causes a 17.5 percent decrease in milk production. Furthermore, subclinical mastitis identification is difficult and takes a long time in nature (Shaikh et al., 2019). Cases of subclinical mastitis, if overlooked, can lead to long-term economic loss and clinical mastitis. Cross breed jersey (70.41%) is more prone to mastitis than HF (16.33%) and local breeds (13.27%), according to Tripathy et al. (2018). Jersey-Holstein crossbred cows in India are more prone to mastitis (94.54%) than indigenous breeds (31.25%) (Sharma et al., 2010).



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